

# Memorandum

**To:** Jason Kase, Anchor Environmental, L.L.C.

**From:** Linda Broach, Ph.D., TCEQ

**CC:** Philip Turner, USEPA; Phil Turner, USEPA; Jon Rauscher, USEPA; Joe Bell, TCEQ; Vicki Reat, TCEQ; Maureen Hatfield, TCEQ; Jessica White, NOAA; Barry Forsythe, USFWS; Keith Tischler, GLO; Richard Seiler, TCEQ; and Tammy Ash, USFWS

**Date:** July 31, 2008

**Re:** July 24, 2008 Technical Memo on "Toxicity and Sediment Chemistry Data Sets, Analysis, and Decision Criteria for Selection of Contaminants of Potential Concern (COPCs) for Ecological Risk Assessment Patrick Bayou Superfund Site, Deer Park, Texas"

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I appreciate your thorough evaluation of the data and analysis that I recently sent. I agree that the minor differences in our methodologies will probably not change the outcome greatly, but some of the differences do address my concerns about less ubiquitous contaminants and my concerns about all levels of toxicity being treated equally. I agree with your proposed paths forward (which I copied in red below), except where noted in my responses. I would be happy to discuss these differences so that we can come to a satisfactory resolution as soon as possible. Thank you for giving me the opportunity to comment on this issue.

## 1. Samples the JDG used in the 75<sup>th</sup> percentile comparison

**JDG Proposed path forward:** We will include all samples and species (excepting *mercinaria*). This would include *Leptocheirus plumulosus*, *Ampelisca abdita*, *Americamysis bahia*, and *Neanthes arenaceodentata*. The final dataset would include the PBLO samples (N=28), TCEQ/EPA August 2003 split samples (N=5), and the TCEQ 2006 samples (N=4). Station 2 would be excluded since it is outside the boundaries of the Site, consistent with our database screening criteria approved by EPA in Work Package 1. We will need to verify that the testing requirements and methods were met for the samples that would be added, primarily due to potential ammonia toxicity in some of the sediments. Otherwise, we think the additional data are relevant and should be included. All data will be screened against the EPA approved data quality criteria as outlined in Work Package 1.

Response: I am fine with this, except that it appears that station 7 was removed and I think it should be retained. Also, I think you should use both 2003 data sets (n = 5 each), not just the EPA/TCEQ one.

## 2. Classification by the JDG of samples as toxic or non toxic

In the Draft COPC Memo, toxic samples were identified as those samples that had control-adjusted survival of less than 80 percent for either *L. plumulosus* or *N. arenaceodentata*; those samples with control-adjusted survival greater than 80 percent for both were considered non-toxic. This is different from the analysis you (Linda) provided in that 1) absolute survival was used to identify toxic samples; and 2) three different toxicity levels were used (non-toxic, toxic, and definitely toxic).

**JDG Proposed path forward:** Samples with at least one species with control-adjusted survival less than 80 percent would be 'toxic'; others would be 'non-toxic'

**Response:** I used absolute survival to make sure that marginally toxic samples would not be grouped with non-toxic samples. I divided the samples into 3 groups so that marginally toxic samples would not be grouped with very toxic samples. I prefer my approach because, 1) it acknowledges the expected “dose-response” nature of toxicity data, and 2) it makes the groups smaller so that constituents that are very toxic, but only present in a few samples will still be seen at the 75<sup>th</sup> percentile. I am willing to discuss how samples should be classified into multiple groups and how the results from the groups should be compared, but, fundamentally, I think that using only 2 groups in this situation is too gross a comparison.

### **3. Calculation of the 75<sup>th</sup> percentile by the JDG**

*JDG Proposed path forward:* We will use the COPC Memo approach: lognormal basis for 75<sup>th</sup> percentile; 2 x 75<sup>th</sup> percentile toxic > 75<sup>th</sup> percentile non-toxic is ‘Fail’.

**Response:** Lognormal basis for 75<sup>th</sup> is fine. I compared the 75<sup>th</sup> percentile of the definitely toxic samples to the 75<sup>th</sup> percentile of the non-toxic samples. If the definitely toxic samples were 2x the non-toxic samples, it was a ‘Fail’. I made all the non-detects zero because I only wanted to consider something as potentially contributing to toxicity if it was actually detected. (Some of the detection limits were much higher than some of the detected values.)

### **4. Sediment samples used in assessing SQG comparison**

*JDG Proposed path forward:* Since there are multiple rounds of sampling at each location, we propose to use the maximum detected value (or alternatively, use one half detection limit if all samples at location are non-detect) at each unique location for each contaminant assessed to avoid any bias or weighting for a station given the unequal number of samples collected between locations. This would result in one result (maximum detected or one half the detection limit) per station to calculate the 95<sup>th</sup> percentile (lognormal data distribution assumed) and other summary statistics. Data from 1996 to the present would be included in this analysis. All data will be screened against the EPA approved data quality criteria as outlined in Work Package 1.

**Response:** Please add station 7, if it is not already in there. Otherwise, this approach is fine with me.

### **5. Request for documentation of additional bioassay and sediment chemistry results for our project file and database**

*JDG Proposed path forward:* We will begin to add the TRACS data to our database immediately. We will use the ‘provisional’ data from the information that you sent and begin adding it to our database unless you have a more ‘database friendly’ format currently available. We would follow up and finalize the data with backup resources (e.g., scans/hard copy/database) when they become available. For the missing metals data, we would need something from TCEQ to add that data and proceed with the reanalysis of the COPC selection, as we currently do not have access to it in any format.

**Response:** I welcome the opportunity to get the data and documentation to you. We can coordinate this by phone and email.